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NOTICE OF ALLOWANCE AND FEE(S) DUE

52835 7590 09/15/2008

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

EXAMINER

GIESY, ADAM

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 09/15/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/511,867

10/18/2004

Kousei Sano

10873.1557USWO

6511

TITLE OF INVENTION: OPTICAL ELEMENT, OPTICAL HEAD, OPTICAL INFORMATION RECORDING/REPRODUCTION DEVICE, COMPUTER, VIDEO RECORDING DEVICE, VIDEO REPRODUCTION DEVICE, SERVER, AND CAR NAVIGATION SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	12/15/2008

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

52835 7590 09/15/2008

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/511,867 10/18/2004 Kousei Sano 10873.1557USWO 6511

TITLE OF INVENTION: OPTICAL ELEMENT, OPTICAL HEAD, OPTICAL INFORMATION RECORDING/REPRODUCTION DEVICE, COMPUTER, VIDEO RECORDING DEVICE, VIDEO REPRODUCTION DEVICE, SERVER, AND CAR NAVIGATION SYSTEM

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nonprovisional NO \$1440 \$300 \$0 \$1740 12/15/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
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GIESY, ADAM 2627 369-100000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/511,867	10/18/2004	Kousei Sano	10873.1557USWO	6511
52835	7590	09/15/2008	EXAMINER	
HAMRE, SCHUMANN, MUELLER & LARSON, P.C. P.O. BOX 2902 MINNEAPOLIS, MN 55402-0902			GIESY, ADAM	
			ART UNIT	PAPER NUMBER
			2627	
DATE MAILED: 09/15/2008				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 725 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 725 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/511,867	SANO ET AL.	
	Examiner	Art Unit	
	ADAM R. GIESY	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/30/2008.
2. ☒ The allowed claim(s) is/are 2,4,5,7,9-12,14,16-30,32,35,36,41,42,44 and 47-52.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
|---|---|

/Adam R. Giesy/
Examiner, Art Unit 2627

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Douglas Mueller on 9/9/2008.

The application has been amended as follows:

In claim 42, line 1 of the claim, "...claim 39, 40 or 41,..." has been changed to --
...claim 41,....--.

In claim 44, line 1 of the claim, "...claim 39, 40, 41 or 43,..." has been changed to --
...claim 41,....--.

In claim 47, line 3 of the claim, "...claim 39, 41, 45 or 46;..." has been changed to --
...claim 41;....--.

In claim 48, line 3 of the claim, "...claim 7, 14, 39, 41, 45 or 46;..." has been changed to --...claim 7, 14 or 41;....--.

In claim 49, line 3 of the claim, "...claim 7, 14, 39, 41, 45 or 46;..." has been changed to --...claim 7, 14 or 41;....--.

In claim 50, line 3 of the claim, "...claim 7, 14, 39, 41, 45 or 46;..." has been changed to --...claim 7, 14 or 41;....--.

In claim 51, line 3 of the claim, "...claim 7, 14, 39, 41, 45 or 46;..." has been changed to --...claim 7, 14 or 41;....--.

In claim 52, line 3 of the claim, "...claim 7, 14, 39, 41, 45 or 46;..." has been changed to --...claim 7, 14 or 41;...--.

Claims 37-39, 45, and 46 are cancelled (see items 3 and 4 below).

Terminal Disclaimer

2. The terminal disclaimer filed on 6/30/2008 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 7,330,292 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Election/Restrictions

3. Claims 2, 4, 5, 9-12, 14, 16-30, 32, 35, 36, 41, 42, 44, and 47-52 are allowable. The restriction requirement between Species I and Species II, as set forth in the Office action mailed on 12/13/2007, has been reconsidered in view of the allowability of claims to the elected invention pursuant to MPEP § 821.04(a). **The restriction requirement is hereby withdrawn as to any claim that requires all the limitations of an allowable claim.** Claims 27 and 44, directed to Species II are no longer withdrawn from consideration because the claim(s) requires all the limitations of an allowable claim. However, claims 37-39, 45, and 46, directed to non-elected Species II remain withdrawn from consideration because they do not all require all the limitations of an allowable claim.

In view of the above noted withdrawal of the restriction requirement, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

4. This application is in condition for allowance except for the presence of claims 37-39, 45, and 46 directed to Species II non-elected without traverse. Accordingly, claims 37-39, 45, and 46 been cancelled.

Note: Applicant's election of Species I in the reply filed on 1/8/2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Allowable Subject Matter

5. The following is an examiner's statement of reasons for allowance:

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

6. Claims 2, 4, 5, 7, 9-12, 14, 16-30, 32, 35, 36, 41, 42, 44, and 47-52 are allowed over the prior art of record.

Independent claims 2, 7, 14, 32, and 35 are allowed since the claims recite an element/head/apparatus comprising a substrate wherein the expression: $380 \text{ nm} \leq (n-1) \times d \leq 420 \text{ nm}$ is satisfied where n is a refractive index of the substrate at a wavelength of 400 nm, and d (nm) is a depth of one step of the grooves; wherein the grooves are formed in

four steps of depth d , depth $2d$, depth $3d$ and depth $4d$; and wherein the depth of the grooves is lined up in the order: depth $2d$, depth $4d$, depth d , depth $3d$, or in the order: depth $3d$, depth d , depth $4d$, depth $2d$; and wherein when light of a wavelength λ_2 in a range of 630 nm to 680 nm passes through the grooves, with respect to each of the grooves, a fractional value smaller than a decimal point of a value obtained by dividing a light path difference attributable to the grooves by the wavelength λ_2 is calculated, and when the calculated fractional values corresponding respectively to the grooves are arranged in an order in which the grooves are lined up, the fractional values are in an order ascending or descending in a stepwise manner.

Claims 4, 5, 9-12, 16-30, 36, and 48-52 are all allowed as being dependent upon aforementioned claims 2, 7, 14, and 35.

Independent claim 41 is allowed since the claim recites an optical head comprising: a first light source; a second light source; an optical element; a focusing means; and a detecting means; wherein the position of the second light source is set further from the focusing means than a position that is substantially midway between the position of that light source at which the aberration at the information recording surface of the second information recording medium when the optical element is not present is at a minimum, and the position of that light source at which light of the second wavelength that is incident on the focusing means is collimated light; wherein the optical element is an optical element comprising a substrate, in which steps are formed protruding from a fiat surface thereof; and wherein the expression: $380 \text{ nm} \leq (n-1) \times d \leq 420 \text{ nm}$ is satisfied when a refractive index of the substrate at a wavelength of 400 nm is n , and a height (nm) of one step is d .

Claims 42, 44, and 47-52 are all allowed as being dependent upon aforementioned claim 41.

The closest prior art by Ryuichiro (JP Pat. No. 2002-062415) discloses using multiple steps in a diffractive optical element in order to eliminate noise. Ryuichiro fails to disclose any step order or positioning of the second light source.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADAM R. GIESY whose telephone number is (571)272-7555. The examiner can normally be reached on 8:00am- 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne R. Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TAN Xuan DINH/
Primary Examiner, Art Unit 2627
September 10, 2008

ARG 9/10/2008
/Adam R. Giesy/
Examiner, Art Unit 2627